

PATENT ABSTRACTS OF JAPAN

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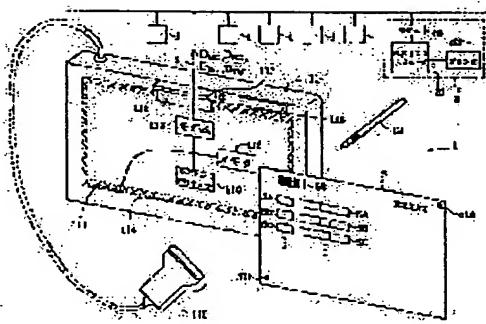
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(54) SYSTEM FOR MANAGING SLIP

(57)Abstract:

PURPOSE: To provide a system for managing a slip in which a host device can recognize handwritten characters or the like as coded characters or the like corresponding to an entry column only by handwriting the characters or the like in the prescribed entry column of a slip sheet in a terminal equipment side.

CONSTITUTION: A terminal equipment 1 is provided with a board 111 for setting a slip sheet (1), pen 12 for handwriting the visible handwriting of characters on the slip sheet (2), and detecting means (electromagnetic sensor 114) for obtaining the handwriting as time-sequentially following coordinate data rows (3). A host device 3 receives the coordinate data rows from the terminal equipment through a data communicating means 2, recognizes the handwriting handwritten on the slip sheet as the coded characters, and specifies the position.



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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention relates to the document managerial system which can character-code-ize said hand and can process the hands (an alphabetic character, notation, etc.) of the character written by the document form by hand with reception and this host equipment as a coordinate data train by the terminal-equipment side at a host equipment side.

[0002]

[Description of the Prior Art] The system transmitted to a host computer through communication lines, such as a public line, is known by using as bit map data documents (it being called a "document" in this specification) which contain conventionally the character written by hand, such as a cut-form and a bill, (reference, such as JP,6-162256,A). In this kind of system, the document which carried out (1) creation is incorporated to a terminal computer as bit map data with an image scanner, and the document which carried out (2) creation which transmits this bit map data to a host computer through a modem and a communication line is transmitted to a host computer as bit map data using facsimile.

[0003] Also in which system of the above (1) and (2), the part with which a character is expressed among the bit map data transmitted to the host computer changes a character code (for example, ASCII code) using a character reading function. The host computer has the information on of what kind of item a block exists in which location of a document form. Therefore, a host computer can do what is dealt with (that is, total, preservation, etc. are carried out) by making into a character code the image of a character written down in the document.

[0004]

[Problem(s) to be Solved by the Invention] However, in the system of (1), the computer for using an image scanner and a modem is needed for a terminal computer. For this reason, the whole system serves as cost quantity. Moreover, in the system of (2), the feed device in which the image reading section is made to pass a document form mechanically is needed. For this reason, if adjustment of a feed device is unstable, the case where it becomes impossible to make the data with which the host computer was character-code-ized correspond to a predetermined item will arise.

[0005] Furthermore, in the system of (1) and (2), the process which sets a document form to a scanner or facsimile is needed. Therefore, a process until a host computer acquires the contents written in the document becomes complicated, and a time loss also increases.

[0006] In addition, in the system of (1) and (2), the alphabetic character and graphic form which the host computer currently printed by the document form does not need, and a line drawing are also transmitted to a host computer. For this reason, there is un-arranging [which is said that the amount of data processing in a terminal computer and a host computer increases].

[0007] A document entry person only writes the hands (an alphabetic character, notation, etc.) of a character by hand to the predetermined block of a document form by the terminal-equipment side, and, for a host equipment side, the purpose of this invention is offering the document managerial system which can recognize this hand written by hand as coded KYATAKUTA corresponding to said predetermined block.

[0008]

[Means for Solving the Problem and its Function] In the document managerial system of this invention, at least one terminal equipment and the host equipment which has a form design function and a document form issue function are connected through a data communication means. Said terminal equipment and said host equipment are connectable with the gestalt of a short-range network (LAN), or the gestalt of the wide area network through a public communication channel etc. Moreover, direct continuation of said terminal equipment and said host equipment can be

carried out through a straight cable, and they can also be connected by an infrared communications apparatus, the microwave communications apparatus, etc. Furthermore, said terminal equipment and said host equipment are connectable through data migration media, such as an IC card.

[0009] a terminal equipment -- (1) -- the board for setting the document form published based on said form design function and the document form issue function, and (2) -- the pen for writing by hand the hand which can view a character in said document form, and (3) -- it has a detection means to acquire said hand as a serial coordinate data train.

[0010] Character code-ization of a coordinate data train is performed by host equipment. The terminal equipment does not have this conversion function. A coordinate data train is serial bit map data of hand information, and includes the information on the order of making strokes in writing a Chinese character. When hand information includes writing pressure information, in host equipment, the conversion precision at the time of character-code-izing a hand improves more. Furthermore, hand information (sign), such as a document entry person's name, can be registered into host equipment as graphic form information (information, such as an image). A document entry person can be specified by comparing the above-mentioned hand information sent from the terminal with the graphic form information registered into host equipment.

[0011] Various modes are assumed about when a terminal equipment and host equipment are connected. For example, when this terminal equipment has started, the line connection of a terminal equipment and the host equipment may always be carried out. Moreover, the line connection of a terminal equipment and the host equipment may be automatically carried out for every fixed time interval. Furthermore, a terminal equipment and host equipment may be connected only when the need arises.

[0012] Said detection means may detect the existence of the pressure at the tip of a pen which joins a board, and the tip location (X-Y coordinate within a board side) of a pen may be recognized. Moreover, when said detection means generates electromagnetic field and the tip of a pen approaches a board, the tip location of a pen may be recognized by detecting change of said electromagnetic field. Furthermore, said detection means can also be used as a pen. In this case, a pen generates electromagnetic field. When the tip of a pen approaches a board, the tip location of a pen is recognized because this board detects the electromagnetic field from the tip of a pen. In addition, a means to detect the strength (writing pressure) of the pressure at the tip of a pen can also be collectively formed in these detection means.

[0013] A terminal equipment can have the function in which the line drawing for discernment, such as a bar code printed by the predetermined location of a document form, etc. can be recognized, and the function in which document creation time of day can be sent to host equipment.

[0014] A terminal equipment can have the display section. In this case, this display section does not need to be the large-sized thing which is used for computers, such as a desktop mold. The display section displays the present time of day etc., and also can indicate whether a terminal equipment is in activation status, and whether the terminal equipment is carrying out the line connection to host equipment, or can also display the comment from host equipment etc.

[0015] Memory is prepared in a terminal equipment. The attached information (such information is hereafter called "document information") which shows the identification information (device ID) of the serial number of a document besides a coordinate data train, the identification information (document ID) of a document form, document creation time of day, and a terminal equipment etc. is temporarily memorized by this memory. One piece of document information about a document or two or more pieces of document information about a document is memorized by this memory. Usually, the document of the two or more per document of one affair is packed, and the document information memorized by memory is sent to host equipment.

[0016] In this invention, a ball-point, a pencil, etc. of marketing besides the pen of dedication are used as a pen for writing a hand by hand. It depends on what kind of detection method said detection means adopts what kind of pen is used. When a detection means is the type which generates electromagnetic field, metaled pens (ball-point which has a metal ball at a tip) are used for a tip.

[0017] In addition, a document form may consist of one sheet and the document of bracing may be the thing of two or more sheet pile reproduced by coincidence.

[0018] The document information from a terminal equipment is sent to host equipment through a proper means. Host equipment compares document information including a coordinate data train with reception through proper means, such as a communication line, as mentioned above, and it compares a handwriting character with many candidates for identification. And while recognizing as a character which coded the hand written by hand, the location (location on a document) is pinpointed.

[0019] As mentioned above, host equipment has the form design function (function in which the class of a block or item column, the number, the layout of each item, etc. can be defined). The document form used by this invention is created based on said form design function. Therefore, host equipment can know easily to which block of a document form the coded character corresponds from the value of the coordinate of the coordinate data train showing a hand.

[0020] In a form design, the sample of a document form is published based on a form design function and a document form issue function (functions, such as a print). Specifically, this sample is printed by the printer attached to this host equipment etc. And this sample is set to the board of a terminal equipment, and the test of whether host equipment can carry out [character code]-izing of the character written by hand to the sample correctly is made. When it is that with which are satisfied of a test, extensive number-of-sheets printing of the document form is carried out by making the sample concerned into the block copy.

[0021] Moreover, a logical check function and AI (Artificial Intelligence) processing facility can be carried in host equipment. For example, when the character written by a certain block by hand is a figure, characters other than a figure are eliminated from the identification candidate of a handwriting character. Or when there are two or more identification candidates of a handwriting character, identification based on priority is performed.

[0022] In addition, the same equipment as the terminal equipment of this invention is indicated by Japanese Patent Application No. No. 315969 [six to] for which it applied on November 25, Heisei 6.

[0023]

[Example] Drawing 1 is the explanatory view showing an example at the time of applying the document managerial system of this invention to a wide area network. In this example, two or more terminal equipments 1 are connected to host equipment 3 through the public communication channel 2. Host equipment 3 consists of a host computer 31, a modem 32, and a printer 33. The host computer 31 has the form design function, and the class of the block and the item column of the document form 5, the number, the layout of each item, etc. are defined based on this function. The document form 5 is designed based on said form design function, and hard copy is created by the printer 33. This hard copy is set to the board 111 which a terminal equipment 1 mentions later as a sample. It is tested whether a host computer 31 can carry out [character code]-izing of the character written by hand to the sample correctly. When it is that with which are satisfied of a test, extensive number-of-sheets printing of the document form 5 is carried out by making the sample concerned into the block copy. In addition, a host computer 31 is connected to a communication line 2 through a modem 32.

[0024] A terminal equipment 1 consists of a body 11 and a pen 12. The body 11 of a terminal equipment has the board 111 for setting the document form 5. Moreover, a microprocessor 110, a modem 112, and memory 113 are formed in the interior of the body 11 of a terminal equipment. Furthermore, while generating electromagnetic field, a detection means (plate-like electromagnetism sensor 114) by which change of this electromagnetic field is detectable is formed in the interior of the body 11 of a terminal equipment. Furthermore, the wand (bar code reader) 115 is attached in the body 11 of a terminal equipment. At the upper right of the body 11 of a terminal equipment, the small liquid crystal display 116 and the document creation termination carbon button 117 are formed. Moreover, although illustration is not carried out, the terminal equipment 1 contains the timer.

[0025] In this example, the ball-point which has a metal ball at a tip is used as a pen 12. Said electromagnetism -- a sensor 114 can detect the contact or contiguity to board 111 front face at the tip of a pen 12, and can acquire the positional information in the 111st page of the board at the tip of this pen (X-Y coordinate).

[0026] In drawing 1, the serial number "xx...x" of the item columns 5a and 5b, ..., Blocks 5A and 5B, ..., a document form is printed by the document form 5. In addition, as for Blocks 5A and 5B and ..., framing is carried out in the respectively fixed pitch. Thereby, a document entry person can write a character by hand at equal intervals.

Moreover, the upper right and at the lower left of a document form, the form location marks 51a and 51b are printed, and the bar code 52 showing the serial number of a document form etc. is printed at the upper left of the form at them.

[0027] A document entry person refers to the command from the host on a display 116 etc. if needed, and sets the document form 5 to a board 111. A clip 118 is used for this set. And a document entry person reads a bar code 52 using a wand 115. This reading information is memorized by memory 113 as bar code information DBC. Next, a document entry person points at the form location marks 51a and 51b at the tip of a pen 2. the location this pointed at by this -- electromagnetism -- it is detected by the sensor 114 and this detection information is memorized by memory 113 as form positional information DSL. A host computer 31 can know the location of a handwriting character correctly by inclining and setting the document form 5 to a board 111, or referring to the acquired form positional information DSL, even if it is the case where shifted vertically and horizontally and it is set so that it may mention later.

[0028] Then, a document entry person uses a pen 2 for the blocks 5A and 5B of the document form 5, and ..., and writes characters, such as an alphabetic character and a notation, by hand. approach (specifically contact to the document form 5 at the tip of a pen 2) in the document form of a pen 2 -- electromagnetism -- it is detected by the sensor 114. And hand information (locus at the tip of a pen 2) is memorized by memory 113 as a time series coordinate data train.

[0029] A document entry person pushes the document creation termination carbon button 117 prepared in the body 11 of a terminal equipment, after the writing to the predetermined block of the document form 5 is completed. In this example, a push on this carbon button 117 transmits the document information DMC including the coordinate data train memorized by memory 113 to host equipment 3 through a modem 112. The document ID in which the identification information of a document form is shown can be included in this document information DMC.

[0030] In addition, the transmission initiation carbon button (not shown) or cancellation carbon button (not shown similarly) other than the document creation termination carbon button 117 can be prepared in the body 11 of a terminal equipment. If a transmission initiation carbon button is pushed after the document creation termination carbon button 117 is pushed when a transmission initiation carbon button is prepared, the document information DMC will be transmitted. The transmission initiation carbon button is convenient when writing in two or more document forms continuously. Namely, the document information DMC about two or more documents can be collectively transmitted to host equipment 3 by pushing the document creation termination carbon button 117 for every termination write-in [to one document]. Moreover, the cancellation carbon button is convenient when the entry errors to a document form occur frequently, and discarding a document form. If a cancellation carbon button is pushed, the document information DMC concerned memorized by memory 113 till then will serve as an invalid.

[0031] In addition, when the document form 5 is removed from a board 111, without forming a carbon button 117 in the body 11 of a terminal equipment, or when the document form 5 is set to a board 111, the document information DMC, the bar code information DBC, the form positional information DSL, etc. may be made to be transmitted to a host computer 31 through a modem 112. Furthermore, as mentioned above, when the document information DMC is memorized by two or more affair memory 113, such document information DMC may be made to be transmitted to a host computer 31 through a modem 112, a communication line 2, and a modem 32. In addition, when a terminal equipment 1 needs to be identified, the instrument identification information DTM can also be added.

[0032] In addition, the read and the write-in equipment of a credit card are connectable with a terminal equipment 1. Or equipment can be formed for this read and write-in equipment in terminal-equipment 1 the very thing. Thereby, in a convenience store, the document information DMC and a user's information (information currently written in the credit card) are also combinable.

[0033] Drawing 2 is drawing showing the flow of the processing in a host computer 31. With a host computer 31, the document information DMC from a terminal equipment 1 is received through a communication line 2 (step 1). Then, amendment processing about a form inclination is performed based on the form positional information DSL (step 2). By this amendment processing, a host computer 31 can be recognized as information on a block that the handwriting character of the document form 5 was written in this handwriting character.

[0034] Subsequently, hand analysis processing is performed about a coordinate data train, and each handwriting character is character-code-ized (step 3). In step 3, when the identification candidate of a handwriting character becomes plurality and character code-ization cannot be performed, while performing a logical check, when needed, it performs AI processing (step 4). In addition, when the above-mentioned character code-ization cannot be performed in step 4, it processes giving a special symbol to a corresponding handwriting character etc.

[0035] Then, the alphabetic character and notation which were character-code-ized are reproduced to the strings of characters (character string etc.) of a predetermined block-(step 5).-Thereby; a total and preservation are presented with these strings of characters.

[0036] In addition, the following technique can be used when the character written by hand by a clerical error etc. to the terminal-equipment 1 side needs to be corrected. (1) -- the entry field of the reserve which cannot be viewed near the block which prepared the spare block in the form beforehand, or was printed by (2) document forms (for example, upper part) is prepared. [namely,] And when a clerical error etc. is carried out, striping is written in the handwriting character written by mistake by striping in piles, and a new character is written in a spare block and a spare entry field. A host computer 31 acquires such information as a part of document information DMC, and transposes it to the character in which the handwriting character by which striping was overwritten was written by a spare block and a spare entry field. In addition, if required, a host computer 31 receives the instrument identification information DTM, and modification can be added to processing or it can give a command to a terminal equipment.

[0037] As mentioned above, although this invention was explained in accordance with the example, this invention is

not limited to the above-mentioned example, and contains the various modes easily recollected from the publication of this specification. For example, in the above-mentioned example, although hand information was explained only as information on X-Y coordinate (namely, coordinate data train), other information, such as writing pressure, can be included in hand information (in this case, a pressure detection function etc. is added to a detection means). Moreover, in the above-mentioned example, although the information written in the document form 5 was explained as characters, such as an alphabetic character and a notation, it can include information which is not character-coded, such as a line drawing, in the document form 5. In this case, blocks, such as a line drawing, are beforehand prepared in the document form 5, and the line drawing written by hand is reproduced by the host computer 31 side based on locus information. A signature which was mentioned above can be identified using this.

[0038]

[Effect of the Invention] It is not necessary to use a computer with a display as a terminal equipment in the document managerial system of this invention. Therefore, a cheap system can be built.

[0039] Moreover, the terminal equipment of the document managerial system of this invention does not have a feed device like an image scanner. Therefore, a time and economical loss until host equipment acquires the contents written in the document can be suppressed to the minimum. Moreover, electronization of management of a document and processing can be attained in the large range, without being restricted to a type of industry, a company scale, and an area.

[0040] Furthermore, only by writing a character by hand, this handwriting character is transmitted to a host computer, is coded by the document form, and is processed. Therefore, the efficiency of management of a document is increased by leaps and bounds.

[0041] In addition, in the document managerial system of this invention, neither the alphabetic character and graphic form which are printed by the document form, nor a line drawing serves as a processing object in a terminal equipment, a host computer, etc. at all. Therefore, the amount of data processing in a terminal computer and a host computer decreases by leaps and bounds, and a system-wide load is reduced.

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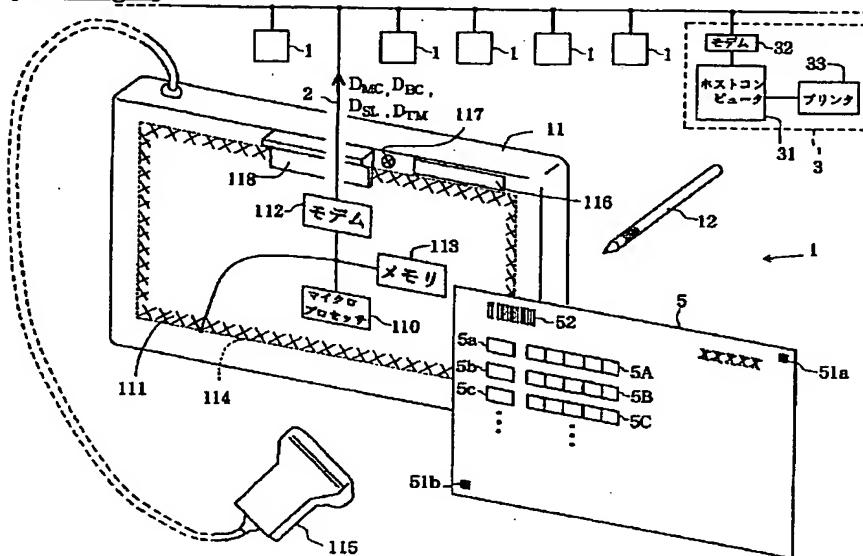
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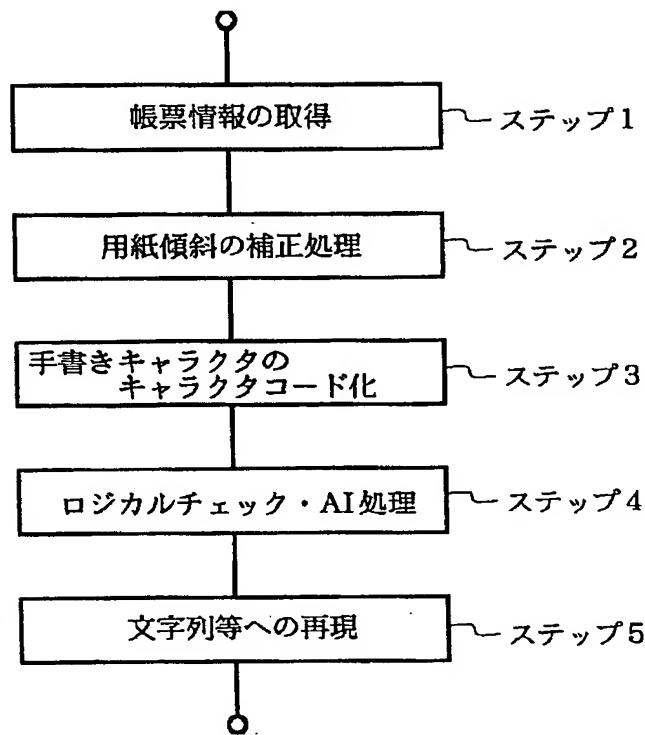
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DRAWINGS

[Drawing 1]



[Drawing 2]



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